



# National Transportation Safety Board

Washington, D. C. 20594

Safety Recommendation

LOG 2/30  
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Date: March 8, 1989

In reply refer to: A-89-3 through -5

Mr. Robert E. Whittington  
Acting Administrator  
Federal Aviation Administration  
Washington, D.C. 20591

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About 1920 mountain standard time on January 19, 1988, N68TC, a Trans-Colorado Airlines, Inc., Fairchild Metro III, operating as Continental Express flight 2286 from Stapleton International Airport, Denver, Colorado, with 2 flightcrew members and 15 passengers on board, crashed on approach to Durango, Colorado. The two flightcrew members and seven passengers were killed as a result of the accident.<sup>1</sup>

The evidence indicates that from the outset the flightcrew of Trans-Colorado 2286 flew the approach into Durango at an altitude that was too high to fly the airplane safely within the parameters established for the approach. Moreover, the difficulties in flying the approach that the crew created for themselves by the excessive altitude from which they began the approach were exacerbated by the tailwind which they were likely encountering. The evidence indicates that, at the altitude from which the approach was begun, almost to the point of impact, the velocity of the tailwind was at least 10 to 15 knots.

The initial approach fix for the approach was on the 096° radial at the 11-mile distance measuring equipment (DME) fix from the Durango very high frequency omnidirectional radio range (VOR). Had the flightcrew flown the approach as published, they would have flown the 11-mile DME arc for a distance which would have enabled them to descend without difficulty from their altitude of 14,000 feet and reach 10,400 feet on the 203° heading. Because they did not, they flew straight in and descended at a rate more than three times the rate intended for the approach.

Trans-Colorado pilots who described their procedures for flying the approach differed in the manner in which they flew it. One said that he used descent rates and airspeeds similar to those flown by Trans-Colorado 2286. Moreover, there was no consistency among the answers the pilots gave as to which pilot, captain or first officer, flew the approach and under what weather conditions the particular pilot

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<sup>1</sup>For more detailed information, read Aircraft Accident Report--*Trans-Colorado Airlines, Inc., Flight 2286, Fairchild Metro III, SA 227 AC N68TC, Bayfield, Colorado* (NTSB/AAR-89/01).

flew it. The variability in techniques and procedures reflects the lack of company procedures for flying the approach.

However, respondents were consistent in some answers. They had to be prepared in advance for flying the approach, and they flew it straight in when arriving from Denver because flying the 11-mile DME arc was considered to be too time consuming. Since Trans-Colorado 2286 was arriving from Denver, located northeast of Durango, flying the arc would have required backtracking with its attendant increase in flying time. Had the flight been arriving from a point southwest of Durango, as may have been true for the routes flown by Frontier Airlines when it designed the approach, perhaps the crew would have flown the procedure as published. The evidence indicates that beginning the approach from the northeast and flying it as published would have added perhaps as much as 10 minutes to the flight. Since the flight was only scheduled for 70 minutes, the Trans-Colorado schedule for the flight, as published, would have discouraged pilots from flying the full approach when conditions warranted.

The evidence indicates that the Federal Aviation Administration (FAA) pursued adequately its surveillance responsibility of Trans-Colorado. However, its principal operations inspector (POI) did not, nor was he required to, personally observe how the company was flying its special VOR DME approach to runway 20 at Durango. He approved it since the approach, as portrayed, appeared similar to others flown by Trans-Colorado and because he was unaware of the United States Standard for Terminal Instrument Procedures (TERPs). However, he may have been unaware of how Trans-Colorado pilots were in fact flying the approach to Durango in instrument meteorological conditions (IMC) when arriving from Denver. The Safety Board believes that the FAA should inform POIs of TERPs criteria and require them to personally observe an operator's conduct of a special approach before it gives the carrier authorization to fly the approach.

Given the challenging nature of the approach on the night of the accident due to the prevailing conditions and the requirement for extreme vigilance and intense concentration on flight parameters, the Safety Board examined the factors that could have compromised the flightcrew's ability to effectively fly the approach. The evidence indicates a record of deficiencies in the first officer's piloting abilities, particularly in instrument flight skills. Although he had considerable piloting experience, several years before the accident he had failed to upgrade to captain due to his poor performance in instrument approaches on a flight check. Less than 1 year before the accident, the first officer failed a 14 CFR Part 135 proficiency check, also due to his poor performance on instrument approaches. During his training at Trans-Colorado, the first officer continued to demonstrate deficiencies in instrument skills.

The Safety Board believes that flying the VOR DME approach to runway 20 at Durango straight in from 14,000 feet at the 11-mile DME fix in IMC required a high level of skills and abilities. The evidence of his past performance and descriptions of his flying abilities by those who had worked with him indicates that the first officer did not possess these abilities.

The Safety Board could find no evidence that Trans-Colorado had conducted a thorough preemployment verification of the first officer's employment. While the company may have been aware of his prior piloting activities, it apparently was unaware of his previous deficiencies in piloting which may have been due to weaknesses in the method in which the preemployment verification was carried out.

The Safety Board believes that the FAA should provide guidance to operators of scheduled revenue passenger service to assist them in obtaining relevant information from previous employers about the piloting skills and abilities of prospective pilots.

With the first officer flying the airplane, the captain was responsible for monitoring the flight parameters and ensuring that the approach was flown in a stabilized manner. The evidence indicates that the captain had used cocaine before the accident, most likely the night before. The Safety Board believes that, based on the reports about his use of the drug, the captain was not a novice cocaine user.

The amount of cocaine and its metabolite in his system indicates that the captain had ingested the drug before the accident. The evidence from literature on the rate of cocaine metabolism suggests that he had consumed the drug at least 10 hours before the accident, most likely in the period 12 to 18 hours before. As a result, his piloting skills were likely degraded from his use of the drug before the accident.

The Safety Board believes that the research into the effects of cocaine use on performance suggest possible avenues of cocaine-related impairment of the captain's perceptual skills and abilities at the time of the accident. These include withdrawal effects, such as significant mood alteration and degradation, craving for the drug, and post-cocaine induced fatigue. Each of these effects, either alone or in combination, could have degraded the captain's abilities to fly as well as monitor the first officer's flying of Trans-Colorado 2286.

The literature on cocaine indicates that its use is still evolving in this country, both in the type of use, habitual vs. occasional, as well as the quality or purity of the drug. Certainly, public perception of the use of the drug has changed over the last few years with the cocaine-related deaths and injuries of public figures. However, as this accident demonstrates, its use by pilots poses a threat to the safety of the flying public.

To exacerbate the problem, cocaine use is difficult to detect, even by individuals who interact daily with an abuser. Moreover, the behavioral manifestations of cocaine use, which are often quite subtle, are affected by several factors in addition to dosage. These include the method of ingestion, tolerance to the drug, and other factors which interact to create the variability in behavioral and physiological effects following both cocaine use and withdrawal from its use. Further, the complexity of the effects of cocaine ingestion and subsequent performance impairment extend to a host of licit and illicit drugs. As a result, this accident demonstrates both the danger of cocaine use in aviation and the difficulty faced by the aviation community in attempting to control that use.

The Safety Board previously examined the use of illicit drugs in its investigation of an airplane accident at Newark, New Jersey on March 30, 1984.<sup>2</sup> As a result of that accident, the Safety Board recommended that the FAA:

<sup>2</sup>Aircraft Accident Report--Central Airlines Flight 27, Hughes Charter Air, Gates Learjet Model 25 (N51CA), Newark International Airport, Newark, New Jersey, March 30, 1984 (NTSB/AAR-84/11)

A-84-95

In coordination with the Office of the Secretary, U.S. Department of Transportation, institute appropriate research to further the understanding of potential effects on pilot performance of both licit and illicit drugs, in both therapeutic and abnormal levels, and actively disseminate those findings.

The FAA responded that a working group with the Department of Transportation (DOT) was created and a literature search was funded and began. On December 29, 1988, the FAA informed the Safety Board that the literature search had been completed and that distribution of the report, *Data Available on the Impact of Drug Use on Transportation Safety*, would be accomplished through the regional flight surgeons. As a result, the Safety Board is changing the status of the recommendation to "Closed--Acceptable Action." However, the Safety Board believes that research must be carried out to determine the effects of different blood levels of a variety of drugs, including therapeutic drugs, on human performance in transportation modes.

This accident demonstrated the need for aviation medical examiners (AME) to more vigorously pursue the detection of drug use among applicants for medical certificates. Had this occurred, perhaps the captain's use of cocaine would have been detected by his AME and his application for a medical certificate disapproved. The Safety Board believes that, because of the valuable information contained within the DOT report, the report should be periodically updated as required and disseminated to all AMEs. In addition, information on the detection of drug use also should be disseminated to AMEs.

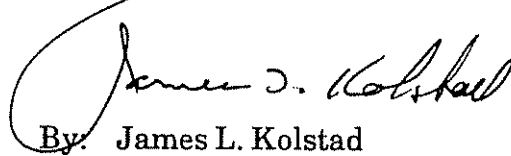
Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Inform principal operations inspectors of the United States Standard for Terminal Instrument Procedures (TERPS criteria), and require them to personally observe an operator's conduct of a special approach before they give the authorization to fly the approach. (Class II, Priority Action) (A-89-3)

Provide guidance to operators of scheduled revenue passenger service to assist them in obtaining relevant information from previous employers about the piloting skills and abilities of prospective pilots. (Class II, Priority Action) (A-89-4)

Distribute and periodically update, as needed, the Department of Transportation study, *Data Available on the Impact of Drug Use on Transportation Safety*, to all aviation medical examiners. In addition, information on the detection of drug use should be disseminated to aviation medical examiners. (Class II, Priority Action) (A-89-5)

KOLSTAD, Acting Chairman, and BURNETT, LAUBER, NALL, and DICKINSON, Members, concurred in these recommendations.

A handwritten signature in cursive script that reads "James L. Kolstad". The signature is written in black ink and is positioned above the typed name.

By: James L. Kolstad  
Acting Chairman